WQB "Wide Aperture Quad" for Main Injector

16 June 2005, 9:00 AM
IB2 conference room

Attendees: Linda Alsip, Jamie Blowers, Bruce Brown, Weiren Chou, Camille Ginsburg, Hank Glass, Dave Harding, Vladimir Kashikhin, Jim Jablonski, Bill Robotham, Linda Valerio, John Zweibohmer

Design/Procurement

All released manifold parts are in procurement. It was learned on this past Monday that the VMS cannot make the bent tubes. Material Control is actively looking for other sources to quickly make these tubes. It is not clear what impact this will have on the schedule.

Work continues on the magnet assembly design.

Linda Valerio reported that the BPM drawings are about to be released. There is a six-week bid/procurement cycle for these. Weiren agreed that the positions of the BPM's should be the same for the WQB installation as they are now for the IQB's (at least for the four magnets which will be installed). Still to be resolved are the details regarding the use of welding and quick-disconnect interfaces. The current design calls for one side of the BPM to be welded (either to the magnet or the beam tube) and the other side to have a quick-disconnect. The present BPM's are not uniform as to which side has which interface, but it was recommended that this be made uniform for the upcoming installation. Linda will look at this in more detail and make a proposal. It should be decided by the time the first magnet comes back to IB2 from measurement at IB1 (currently 10-Aug).

Fabrication

Core stacking and coil winding/insulation/potting is proceeding. Four quarter cores and their respective coils are glued together. Two of them are mated in the rollover fixture, and the other two are mated together outside the fixture. The swaged beam tube, without flanges, in now in IB2. The plan is to assemble the magnet, with beam tube, in the rollover fixture starting this afternoon. If all goes well, we should be able to make the pre-weld optical survey Friday, and perhaps weld on Saturday. We have a proposed welding scheme which involves two welders. All personnel involved have been apprised of the current status. If the assembly goes well, then the manifolding will become the next major hurdle.

MTF Measurements

Hank presented the current test plan. There was some discussion over the details. The probe length will be looked at in more detail, to see if the 96" probe will be long enough. If the longer IQD probe is used, new center supports will be needed.

Dave wondered if MTF should do rotating Morgan coil harmonics measurements at the expected beam location for the closed orbit (i.e. offset in x about one inch) for all magnets. It was agreed that this might make sense to do, but a decision was not made. The usefulness of doing SSW measurements through the entire aperture was also brought up.

Vladimir showed his analysis of the IQB harmonics, recalculating for a two-inch radius. His report also included WQB field calculations and the effects of variations in the laminations and

fabrication tolerances. His summary: we can produce a “perfect” quadrupole field by adjusting the length, shims and trim coil currents, but this will cost us time in the schedule.

Schedule

The schedule now depicts shipment of the first unit to MTF on 7/12/05, and the fourth unit being completed (including MTF measurement) on 05-Oct-05. It is worth noting that some contingency remains in the magnet assembly effort (10 days on line 87). If the assembly of the first magnet goes well (i.e. welding by Tuesday next week), we could gain back perhaps eight days in the schedule.

June 23 is DASTOW, so next meeting perhaps June 30, 9:00 AM, IB2 Conference Room?